

IN THE CLAIMS:

Please cancel claims 1-29 without prejudice to or disclaimer of the subject matter recited therein.

Please add new claims 30--55 as follows:

LISTING OF CURRENT CLAIMS

Claims 1-29. (Canceled)

Claim 30. (New) A ballast device adapted to receive an external voltage from an electrical source and supply a stable power to a load module, the ballast device comprising:

5 a power supply unit that comprises an assistant power circuit receiving the external voltage and generating an outer working voltage, and a transformer module converting the external voltage into an output voltage applied to the load module and inducing an actual load current flowing through the load module;

a micro control unit, which receives the outer working voltage and generates a predefined load current; and

10 a PWM control unit, which comprises a PID control module that receives and operates on the predefined load current and the actual load current and, in response thereto, generates a control signal to the transformer module to modulate the output voltage.

Claim 31. (New) The ballast device as claimed in claim 30, wherein the transformer module comprises a step-down DC-DC transformer.

Claim 32. (New) The ballast device as claimed in claim 30, further comprising a user interface, which allows for user setting of the predefined load current.

Claim 33. (New) The ballast device as claimed in claim 30, wherein the power supply unit comprises an EMI filter for filtering out EMI from the external voltage and providing a filtered voltage; a PFC receiving the filtered voltage and in response thereto generating a direct current output, which is applied to the assistant power circuit to be converted into the outer working voltage and the transformer module to be converted into the output voltage separately.

Claim 34. (New) The ballast device as claimed in claim 30, further comprising a detection module detecting an operation parameter of the ballast device, and providing the operation parameter to the micro control unit for controlling the operation of the ballast device.

Claim 35. (New) The ballast device as claimed in claim 34, wherein the micro control unit receives the operation parameter, and in response thereto generates the predefined load current.

Claim 36. (New) The ballast device as claimed in claim 34, wherein the micro control unit receives the operation parameter and in response thereto generates a user-identifiable message.

Claim 37. (New) The ballast device as claimed in claim 34, wherein the operation parameter is selected from a group consisting of temperature of the load module, the output voltage of the transformer module and an output of a PFC of the power supply unit that is supplied to the assistant power circuit and the transformer module.

Claim 38. (New) The ballast device as claimed in claim 310, further comprising a DC-AC transformer, which receives a DC output from the DC-DC step-down transformer and generates the output voltage and the actual load current to the load module.

Claim 39. (New) The ballast device as claimed in claim 30, wherein the assistant power circuit generates an interior working voltage to power the ballast device.

Claim 40. (New) A method for supplying a stable power to a load module, comprising the following steps:

activating a power supply unit to receive an external voltage from an electrical source, and generating an output voltage applicable to the load module;

5 detecting an practical load current flowing through the load module induced by the output voltage;

providing a predefined load current by a micro control unit;

processing said predefined load current and said practical load current with a PID control module to generate a control signal; and

10 modulating the output voltage with the control signal.

Claim 41. (New) The method as claimed in claim 40, wherein the output voltage is generated by down converting a first DC voltage, which is provided by the power supply unit, into a second DC voltage by a DC-DC transformer.

Claim 42. (New) The method as claimed in claim 40, wherein said power supply unit comprises an EMI Filter for filtering EMI from the external voltage and providing a filtered voltage; a PFC for converting the filtered voltage to a first DC voltage and separately supplying said first DC voltage to an assistant power circuit that generates an outer working voltage powering the micro control unit and a DC-DC transformer that converts the first DC voltage to a second DC voltage for further inducing the output voltage.

Claim 43. (New) The method as claimed in claim 40, wherein the step of providing a predefined load current comprises providing a user interface and user setting the predefined load current in the micro control unit.

Claim 44. (New) The method as claimed in claim 42, further comprising a step of defining one operation parameter and supplying the operation parameter to the micro control unit to generate the predefined load current.

Claim 45. (New) The method as claimed in claim 44, further comprising a step of judging whether the operation parameter is with a preset range to determine whether to generate an identifiable message.

Claim 46. (New) The ballast method as claimed in claim 44, wherein the operation parameter is selected from a group consisting of temperature of the load module, an output voltage of said DC-DC voltage transformer and an output voltage of said PFC.

Claim 47. (New) The method as claimed in claim 42, further comprising a step of generating an inverter wave by said micro control unit to control a DC-AC transformer that converts the second DC voltage to the output voltage.

Claim 48. (New) The method as claimed in claim 40, further comprising a step of generating an interior working voltage by an assistant power circuit of said power supply unit.

Claim 49. (New) A method for employing a ballast device having built-in power supply unit to supply a stable power to a load module, comprising the following steps:

5 supplying an external voltage from an electrical source to the power supply unit to generate an outer working voltage, which is supplied to a micro control unit, and an output voltage, which is applicable to the load module to induce an actual load current flowing through the load module;

detecting an operation parameter of at least one of the power supply unit and the load module;

10 applying the operation parameter to the micro control unit to generate a predefined load current;

performing a PID operation on the predefined load current and the actual load current to obtain a control signal; and

15 modulating the actual load current with the control signal in a real-time manner.

Claim 50. (New) The method as claimed in claim 49, further comprising a step of generating an invert wave by the micro control unit to control conversion of an intermediate DC voltage in the power supply unit into an AC to serve as the output voltage supplied to the load module.

Claim 51. (New) The method as claimed in claim 49, further comprising a step of using an EMI Filter to filter out EMI from the external voltage from the electrical source; a step of using a PFC to convert a filtered voltage generated by said the EMI filter into a first DC voltage; a step of using an assistant power circuit to receive the first DC voltage and generate the outer working voltage; and a step of using a DC-DC transformer to receive and convert the first DC voltage into a second DC voltage based on which the output voltage is generated, the DC-DC transformer receiving the control signal to control the second DC voltage in order to modulate the actual load current.

Claim 52. (New) The method as claimed in claim 51, wherein the operation is selected from a group consisting of temperature of the load module, the second DC voltage generated by the DC-DC transformer, and the first DC voltage generated by the PFC.

Claim 53. (New) The method as claimed in claim 52, wherein the step of applying the operation parameter to the micro control unit to generate the predefined load current further comprises simultaneously applying the actual load current to the micro control unit for generating the predefined load current.

Claim 54. (New) The method as claimed in claim 53, further comprising a step of judging whether the operation parameter is within a preset range to device whether to generate an identifiable message.

Claim 55. (New) The method as claimed in claim 54, further comprising a step of judging whether the operation parameter is within a preset range to decide whether to modify operation status of the ballast device.